

1 MINUTES (draft)
2 SCIENTIFIC ADVISORY COMMITTEE
3 SUBCOMMITTEE MEETING ADDRESSING mtDNA PROTOCOLS
4

5 August 4, 2008
6 DFS CENTRAL LABORATORY
7 FIRST FLOOR CLASSROOM
8

9 Members of Subcommittee Present:

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11 Norah Rudin, Ph. D. (Subcommittee Chair, Scientific Advisory Committee Member)
12 Ms. Catherine M. Knutson (Minnesota Bureau of Criminal Apprehension)
13

14 Members of Subcommittee Not Present:

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16 Ms. Carna E. Meyer (Armed Forces DNA Identification laboratory)
17

18 Staff Members Present:

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20 Dave Barron, Ph.D. (Director of Technical Services)
21 Mr. Brad Jenkins (Forensic Biology Section Chief)
22 Mr. Stephen Rodgers (Forensic Scientist II mtDNA)
23 Mr. Brian Shannon (Forensic Scientist II mtDNA)
24 Ms. Guinevere Cassidy (Legal Assistant, VDFS)
25

26 Individuals Present at Some Point during Proceedings:

27
28 Mr. Barry Fisher (Scientific Advisory Committee Chair)
29 Mr. Joseph Bono (Scientific Advisory Committee Member)
30 Ms. Deborah Friedman (Scientific Advisory Committee Member)
31

32 Call to Order:

33
34 Subcommittee meeting was called to order at 9:15AM.
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36 Mr. Jenkins welcomed the subcommittee members and indicated that the DFS mtDNA
37 Unit (Unit) had gone through all of the subcommittee's recommendations. He pointed
38 out that the Unit had provided further clarification within the protocols, completed
39 additional validation work, and had also provided updated validation summaries for the
40 subcommittee's review.
41

42 Chairwoman Norah Rudin, Ph. D. (Rudin) started the meeting by asking for a correction
43 to the minutes from the May 5th subcommittee meeting. She wanted the change to reflect
44 that when she spoke of the example case she was providing to the Unit that the work was
45 performed on the Applied Biosystems 377 instrument as opposed to the wording in the
46 minutes of "...predecessor to Big Dye chemistries."

47

48 Rudin indicated that she had created a short agenda for the meeting and that it was
49 evident that the Unit had gone back and done substantive work and she really appreciated
50 the efforts. Ms. Knutson concurred.

51

52 Members addressed points from the agenda offered by Rudin:

53

54 Point 1 - Rudin indicated she felt the Unit's summaries now supported the protocols, and
55 indicated she had only minor comments regarding them. Ms. Knutson agreed and felt
56 that the additional studies and rewrites now clearly support the protocols.

57

58 Rudin commented on the Buccal/Blood extraction and asked for clarification on how old
59 the samples were. Mr. Jenkins indicated the age of the samples and why they were
60 labeled as reference vs. evidence, essentially to "handle them as representative samples".

61

62 Rudin indicated that the primer binding site mutation information included in the Linear
63 Array study was interesting.

64

65 Rudin asked for clarification regarding samples that didn't work for the Linear Array but
66 were successful for sequencing as well as those that didn't work at all when exposed to
67 dirt. She also inquired as to what the section may look into regarding different analytical
68 methods in the future for samples like these. Ms. Knutson indicated that in the future it
69 might be nice to address these things but it didn't really change how the Unit would apply
70 its validation to the protocols.

71

72 Rudin made a general comment about citing references within the summaries and also
73 indicated that it might be useful to address the primer binding site information in the
74 conclusions of the concordance study.

75

76 Rudin cautioned regarding using just the one mitotype (HL60) for the cycle sequencing
77 validation.

78

79 Rudin asked about the hair extraction protocol regarding the potential degradation of
80 samples and cautioned that the lack of results could also be due to the formation of
81 dimers and to be aware of that. Ms. Knutson indicated, the Unit could address that in the
82 UV study.

83

84 Point 2 - Subcommittee members agreed that the issues had been addressed.

85

86 Point 3 - Subcommittee members agreed that the issues had been addressed. A brief
87 discussion regarding the extent of hair training and what the Trace section will be doing
88 to assist the Unit ensued.

89

90 Points 4 through 9 - Subcommittee members agreed that the Unit had addressed issues.

91

92 Ms. Knutson indicated that the Unit has made a strong statement regarding mixtures and
93 may want to reconsider it or soften it because; as the Unit does more work they may see a
94 real sample with three heteroplasmic events. Rudin offered wording to the effect of
95 "...may be considered as a mixture."
96

97 Point 10 - Rudin applauded the Unit on efforts to address context bias. Members agreed
98 the issue was addressed.
99

100 Points 11, 12 and 13 - Rudin and Ms. Knutson indicated that there was a healthy
101 discussion regarding all these issues. There is disagreement on the points among the
102 members, but the Unit has made their decision on how they will handle things and efforts
103 to revisit the discussions are not necessary.
104

105 Point 14 – Rudin had hoped other Scientific Advisory Committee members would have
106 been there to assist in the debate. Ms. Knutson indicated that the Unit is consistent with
107 the forensic mitochondrial community and this issue may always be a point of contention.
108

109 Rudin had general suggestions for implementation of protocols; Mr. Jenkins explained
110 issues arising from processing certain types of samples without a formal Quality
111 Assurance Standards (QAS) audit. Rudin also suggested revisiting the protocols in a year
112 or so and changing them if necessary. Ms. Knutson indicated that she felt the Unit had an
113 excellent chance at passing the QAS audit.
114

115 Rudin asked if the Unit had a chance to address the case she provided. Mr. Jenkins
116 indicated that the Department of Forensic Science would not be able to offer an opinion
117 on the sequence data. Rudin indicated that the decision was very unfortunate and short-
118 sighted as discussing it would help the laboratory to further understand and refine
119 interpretation rules.
120

121 Rudin offered minor comments on individual points within the protocols. Unit members
122 directed subcommittee members to where specifics on the comments were located within
123 the protocol. Discussion ensued regarding the points: sterile instruments, n-butanol, pre-
124 labeled tubes, tube decappers and sterile technique, what is "requisite quality" regarding
125 sequence data, reagent blanks for batched samples, HVII length heteroplasmy
126 interpretation guidelines and the wording "above the level of background in both
127 strands", meaning of "considered by examiner" regarding database searches, reporting of
128 statistics, re-extract, re-amplify, re-sequence, re-inject for Quality Control (QC) chapter,
129 separation in "time and space", post-amp reagents/equipment "prohibited" from entering
130 extraction lab, reasoning behind wording "maximum extent possible", ordering of
131 samples during analysis and position of controls, and the definition of "regular basis"
132 regarding laboratory cleaning.
133

134 10:40 AM – Subcommittee adjourned for a short break.
135

136 10:50 AM – Subcommittee re-convened.
137

138 Rudin read Ms. Meyer's comments received via e-mail. Ms. Meyer agreed that the
139 updated validation summaries supported the protocols. She had no new questions but
140 wanted to know if the bone sequence data from the University of North Texas had been
141 received. She recommended the addition of editing instructions for primer trimming as
142 well as the inclusion of International Union of Pure and Applied Chemistry (IUPAC)
143 codes in charts within reports. Mr. Jenkins indicated that the bone data had not been
144 received and also indicated that a "note" within the protocol addressed Ms. Meyer's
145 primer trimming question. The Unit would also include a report footnote regarding
146 IUPAC designations.

147

148 Rudin indicated that she wanted to hear from Ms. Deborah Friedman before the
149 subcommittee adjourned. Rudin and Ms. Meyer agreed that the Unit had addressed all
150 their questions. Some dissenting opinions remain regarding certain issues but the Unit
151 has made a decision and further discussion is not necessary. Both Ms. Meyer and Rudin
152 agreed that the subcommittee recommendation would be to move forward with
153 implementation of protocols for casework.

154

155 11:00 AM – Subcommittee adjourned for lunch and to wait until Ms. Friedman, who was
156 serving on Y-STR subcommittee, was available. She had previously requested that the
157 subcommittee consider her comments.

158

159 12:40 PM – Subcommittee reconvened.

160

161 Rudin made a motion to accept the meeting minutes from May 5th, 2008, with the one
162 correction she previously mentioned. Ms. Knutson seconded the motion and the motion
163 carried.

164

165 Ms. Friedman had a few comments from a Quality Assurance (QA) perspective.
166 Subcommittee and Unit members discussed the wording "attempt to obtain a full
167 sequence of positive control should be performed", conclusions in sensitivity study
168 regarding range of input DNA for sequencing, wording of "one item should be opened at
169 a time", disposable gloves/lab coats should be used, everyone agreed that more definitive
170 statements need to be used.

171

172 Other points discussed from a QA perspective involved the use of National Institute of
173 Standards and Technology (NIST) traceable thermometers for heat blocks, pipette
174 calibration, refrigeration temperature monitoring and use of alarms, use of expired
175 reagents, and reagents with no expiration date and how long they remain at a quality
176 standard. Unit members addressed points to the satisfaction of subcommittee members
177 and Ms. Friedman.

178

179 There was no public comment and no members of the public in attendance.

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181 1:00 PM – Subcommittee adjourned.